Genetic programming approach for testing credit risk box method.

ABSTRACT

In this paper, Genetic Programming (GP) technique is applied to the empirical analysis of a new geometric approach of credit risk, financial ratios and bankruptcy prediction. Utilizing financial ratios for prediction of corporate bankruptcy and identification of firms' impending failure is indeed desirable for investors, creditors, borrowing firms, and governments. This paper presents new geometric technique for empirical analysis of credit and bankruptcy risk using financial ratios. Within this framework, we propose the use of a new ratio representation which is named Risk Box measure (RB). We demonstrate the application of this geometric approach for variable representation, data visualization and financial ratios at different stages of corporate bankruptcy prediction models based on financial balance sheet ratios. These stages are the selection of variables (predictors), accuracy of each estimation model and the representation of each model for transformed and common ratios. By the time, several methods have been attempted in the use of financial ratios on predicting bankruptcy but some of them suffer from underlying shortcomings. Recently, Genetic Programming (GP) has received great attention in academic and empirical fields of solving highly complex problems. Results of Genetic Programming (GP) as statistical classification methodology are compared for common and transformed ratios and better accuracy is obtained.

Keyword: Ratios analysis; Risk box; Credit risk; Bankruptcy prediction; Genetic programming.